
(12) UK Patent Application (19) GB (11) 2 206 048 (13) A

(43) Application published 29 Dec 1988

(21) Application No 8814224

(22) Date of filing 15 Jun 1988

(30) Priority data

(31) 8714658

(32) 23 Jun 1987

(33) GB

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(51) INT CL
A61K 7/48

(52) Domestic classification (Edition J):
A5B 161 822 FH

(56) Documents cited

GB A 2155337 GB A 2065687 GB A 2064363
EP 0160430 EP 0154837 EP 0152953

EP 0076146 WO 8503641

Chemical Abstracts Vol. 107 (18), abstract no.

161400y JP 62/135404

Note: EP 0152953 and WO 85/03641 are equivalent;

(58) Field of search

A5B
Selected US specifications from IPC sub-class
A61K

(54) Multi-layer cosmetic composition

(57) Cosmetic compositions which on standing form two or more distinctive layers, but which when shaken provide an emulsion which remains homogeneous for a period of at least 30 seconds comprise i) an aqueous phase; ii) an oil phase containing a volatile silicone; and iii) an emulsifying agent. The volatile silicone may be a dimethicone fluid or a cyclomethicone fluid. The emulsifying agent may be a dimethicone copolyol.

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This invention relates to cosmetic compositions.

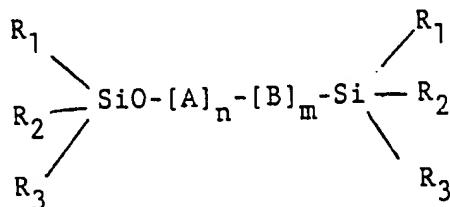
According to the present invention there are provided cosmetic compositions which on standing form 5 two or more distinctive layers, but which when shaken provide an emulsion which remains homogeneous for a period of at least 30 seconds. The cosmetic compositions of the present invention comprise; i) an aqueous phase; ii) an oil phase containing a volatile 10 silicone; and iii) an emulsifying agent.

The aqueous phase may contain between 10% and 80% by weight water and may contain up to 40% by weight of a water-miscible liquid for example, glycerin, propylene glycol, butylene glycol, sorbitol or sodium 15 pyrrolidone carboxylate or mixtures thereof. Advantageously, the compositions may contain up to 20% by weight of glycerin or up to 15% by weight of sodium pyrrolidone carboxylate. The aqueous phase may also contain other water soluble ingredients such as dyes, 20 preservatives, humectants, moisturisers, sun screens, herbal extracts, thickeners, conditioners, vitamins or minerals. When the cosmetic compositions are to be used as cleansing solutions, the aqueous phase may comprise up to 30% by weight of a water soluble 25 alcohol, for example ethanol or isopropanol, which enhance the cleansing properties of the compositions.

The oil phase may constitute between 1 and 60% by weight of the cosmetic compositions of the present invention. Advantageously the oil-phase comprises one 30 or more volatile silicones and makes up between 30 and 50% by weight of the cosmetic compositions. Preferred volatile silicones include the volatile dimethicone

fluids for example, hexamethyldisiloxane or volatile cyclomethicone fluids, for example, octamethylcyclotetrasiloxane or decamethylcyclopentasiloxane. Suitable dimethicones are available from commercial sources such as Dow Corning (as 200 Fluid), Union Carbide (as L-45), TH. Goldschmidt AG (as the ABIL 10 to ABIL 10,000 range) and Wacker-Chemie GmbH (as the AK range of Silicone Fluids). Suitable cyclomethicones are available from commercial sources, such as Dow Corning (as 344 Fluid or 345 Fluid), Union Carbide (as VS-7207, VS-7158 or VS-7249), TH. Goldschmidt AG (as ABIL K4 or B8839) or Wacker-Chemie GmbH (as Silicones Fluids Z020, Z025, Z030 and Z040). Up to 20% by weight of other materials which are soluble or dispersible in the volatile silicone may be included in the oil phase of the compositions. Examples of suitable compatible components include natural or synthetic oils such as camellia oil, wheatgerm oil, sesame oil, avocado oil, almond oil, cetearyl isononanoate or antioxidants, sun screens, fats or waxes, resins, fragrance compounds and dyes.

The emulsifying agent may comprise between 0.05% and 30% by weight of the cosmetic composition according to the present invention. In preferred compositions the emulsifying agent comprises between 2 and 10% by weight of the composition. The emulsifying agent may be a single component or it may be a mixture of a primary emulsifier and a co-emulsifier. Particularly preferred emulsifying agents are the dimethicone copolyols of formula I:-



I

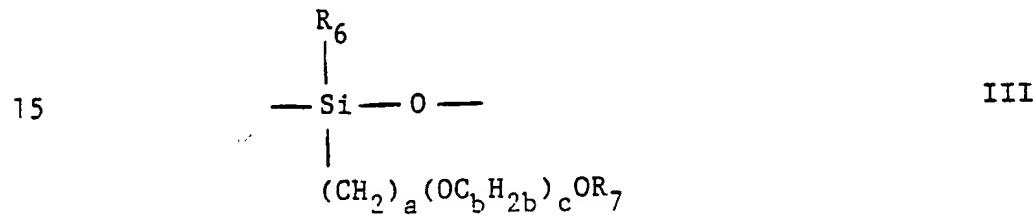
in which R_1 , R_2 and R_3 , which may be the same or different, are alkyl groups of 1 to 3 carbon atoms, for example methyl or ethyl groups;

5 in which A represents a dialkylsiloxy group of formula II:-



10 in which R_4 and R_5 which may be the same or different are alkyl groups containing 1 to 4 carbon atoms;

in which B represents a polyoxyalkylene-containing di-substituted siloxy unit of formula III:-



20 in which R_6 is an alkyl group containing 1 to 4 carbon atoms, a is 0 or a number from 1 to 8, b is 2 or 3, c is a number from 3 to 20 and R_7 is a terminal group selected from H, alkyl, aryl and acyl groups;

in which n is a number from 5 to 100; and in which m is a number from 1 to 16.

25 In particularly preferred emulsifying agents of formula I, the groups R_1 , R_2 , R_3 , R_4 , R_5 , R_6 and R_7 are

5 methyl groups and a is 3 or 4, b is 2, c is a number from 5 to 12, n is a number from 15 to 30 and m is a number from 1 to 5. In especially preferred emulsifying agents of formula I R₁, R₂, R₃, R₄, R₅, R₆ and R₇ are methyl, a is 3, b is 2, c is 7.5, n is 20 and m is 3.2.

10 Suitable dimethicone copolyols are available from commercial sources such as Dow Corning (as 190 or 193 surfactant), Union Carbide (as Silwet Surface Active Copolymers), TH. Goldschmidt AG (as ABIL 8842, 8843, 8851, 8852, 8863, 8873) or Wacker-Chemie GmbH (as Silicone Fluids VP 1661 and VP 1629). A blend of suitable dimethicone copolyols and cyclomethicones 15 suitable for use of the volatile silicone component in the compositions of the present invention are commercially available from Union Carbide (as Silsoft Beauty Aid).

20 The cosmetic compositions of the present invention may be used for any of the known cosmetic products. One group of particularly preferred cosmetic compositions are those which are used for cleansing the skin. These particularly preferred cleansing compositions contain a water-soluble alcohol which 25 enables solubilisation of sebum and other lipidic compounds which are present on the skin surface. Such a product is normally applied to the skin surface with the aid of an absorbent material such as cotton wool, onto which the sebum and other lipidic materials are deposited. When applied in this way to the skin the 30 cosmetic composition is deposited on the skin. After evaporation of the volatile silicone, the alcohol and the water a deposit of the non-volatile components will be left. This is particularly advantageous if the non-volatile component remaining on the skin is a

humectant or other ingredient imparting beneficial effects on the skin.

The use of compositions in the form of two or more phases shows many advantages over single phase cosmetic compositions. By use of the present invention it is possible to minimise the quantity of emulsifier necessary to present a satisfactory emulsion to the user. It is well known that emulsifiers can show adverse reactions on the skin due to the reduction in surface tension and subsequent absorption of these materials. The present invention enables the minimum amount of emulsifier to be used but allows a satisfactory emulsion to be formed at the time of use. By use of the present invention it is possible to have in the same compositions a water-soluble component and an oil soluble component which are known to be incompatible on prolonged storage. Before use the cosmetic compositions will be agitated so that an emulsion is formed but when the product is allowed to stand the phases will separate out so that there is no contact between the incompatible components in the aqueous and the oil phase. The compositions of the present invention can be used as a delivery system of skin beneficial ingredients particularly where a user is sensitive to traditional cosmetic products. By the appropriate use of water-soluble colouring materials in the aqueous phase and oil soluble colouring materials in the oil phase it is possible to provide a product which is aesthetically pleasing and which has great appeal to the user of the cosmetic compositions. It has been found by the present applicant that the compositions of the present invention require substantially smaller amounts of preservative than has been usual in cosmetic compositions heretofore. In the Examples given herein no preservatives have been found to be necessary.

The invention will be illustrated by the following Examples of skin treating compositions made in accordance with the present invention. These compositions are given by way of example only and the 5 percentages quoted are by weight of the compositionS

Example 1

A water-containing blend of
cyclodimethicone and dimethicone
copoloyol (sold under the trade
10 name Silsoft Beauty Aid SL by
Union Carbide) 20%

Cyclodimethicone (sold under the trade name
345 Fluid by Dow Corning) 20.0%
Glycerin BP 10.0%
15 Purified Water BP 50.0%

The above components were mixed and gave a composition which separated on standing to give two layers after approximately 24 hours.

Example 2

20 Cyclodimethicone (Dow Corning 345 Fluid) 25%
Dimethicone copolyol (ABIL B8852
Goldschmidt) 0.25%
Glycerin BP 12.5%
Purified water BP 62.25%

25 The above components were mixed and gave a composition which separated on standing to give two layers after approximately four hours.

Example 3

A water-containing blend of cyclodimethicone and dimethicone copolyol (sold under the trade name Silsoft Beauty Aid SL by Union Carbide) 52.0%

Ethanol 16.0%

Glycerin BP 10.0%

Sodium pyrrolidone carboxylate a 10 50% solution in water sold under the trade name Ajidew N50 by Ajinomoto 1.0%

Purified water BP 21.0%

The above components were mixed and gave a composition which separated on standing to give two layers after 15 approximately 4 hours.

Example 4

Cyclodimethicone (Dow Corning 345 Fluid) 40.0%

Dimethicone copolyol (Silwet L7602 - Union Carbide) 0.1%

20 Sweet almond oil 2.5%

Ethanol 15.0%

Glycerin BP 10.0%

Sodium pyrrolidone carboxylate (Ajidew N50 - Ajinomoto) 5.0%

25 Purified water BP 27.4%

The above components were mixed and gave a composition which separated on standing to give two layers after approximately 24 hours.

Example 5

A water-containing blend of
cyclodimethicone and dimethicone
copoloyol (sold under the trade

5	name Silsoft Beauty Aid SL by Union Carbide)	40.0%
	Cyclodimethicone (Dow Corning 345 Fluid)	10.0%
	Orchid oil	2.5%
	Ethanol	15.0%
10	Glycerin BP	10.0%
	Sodium pyrrolidone carboxlate (Ajidew N50 - Ajinomoto	5.0%
	Purified water BP	17.5%

15 The above components were mixed and gave a composition
which separated on standing to give two layers after
approximately two hours.

Example 6

A water-containing blend of
cyclodimethicone and dimethicone

20	copoloyol (sold under the trade name Silsoft Beauty Aid SL by Union Carbide)	30.0%
	Cyclodimethicone (Volatile Silicone Y7207 - Union Carbide)	10.0%
25	Camellia oil	5.0%
	Ethanol	25.0%
	Glycerin BP	10.0%
	Sodium pyrrolidone carboxylate (Ajidew N50 - Ajinomoto)	10.0%
30	Purified water BP	10.0%

The above components were mixed and gave a composition
which separated on standing to give two layers after

approximately one hour.

Example 7

	A water-containing blend of cyclodimethicone and dimethicone	
5	copoloyol (sold under the trade name Silsoft Beauty Aid SL by Union Carbide)	30.0%
	Cyclodimethicone (Volatile Silicone Y7207 - Union Carbide)	10.0%
10	Camellia oil	5.0%
	Butylated hydroxytoluene BP	0.01%
	Isopropanol	15.0%
	Glycerin BP	10.0%
	Sodium pyrrolidone carboxylate	10.0%
15	(Ajidew N50 - Ajinomoto)	
	Colouring agent	qs
	Drometrizole (Tinuvin P- Ciba Geigy)	0.05%
	Purified water BP	to 100%

20 The above components were mixed and gave a composition which separated on standing to give three layers after approximately 2½ hours.

Example 8

	A water-containing blend of cyclodimethicone and dimethicone	
25	copoloyol (sold under the trade name Silsoft Beauty Aid SL by Union Carbide)	30.0%
	Cyclodimethicone (Volatile Silicone Y7207 - Union Carbide)	10.0%
30	Sesame oil	3.0%
	Butylated hydroxytoluene	0.01%
	Ethanol	15.0%

	Glycerin BP	10.0%
	Sodium pyrrolidone carboxylate (Ajidew N50 - Ajinomoto)	10.00%
	Water-soluble colouring agent	qs
5	Oil-soluble colouring agent	qs
	Purified water BP	to 100%

The above components were mixed and gave a composition which separated on standing to give three layers after approximately one and three quarter hours.

10 Example 9

	A water-containing blend of cyclodimethicone and dimethicone copolylol (sold under the trade name Silsoft Beauty Aid SL by 15 Union Carbide)	30.0%
	Hexamethyldisiloxane (ABIL K520 Goldschmidt)	10.0%
	Camellia oil	5.0%
	Ethanol	15.0%
20	Glycerin BP	10.0%
	Sodium pyrrolidone carboxylate (Ajidew N50 - Ajinomoto)	10.0%
	Water-soluble colouring agent	qs
	Oil-soluble colouring agent	qs
25	Purified water BP	to 100%

The above components were mixed and gave a composition which separated on standing to give three layers after approximately 45 minutes.

Example 10

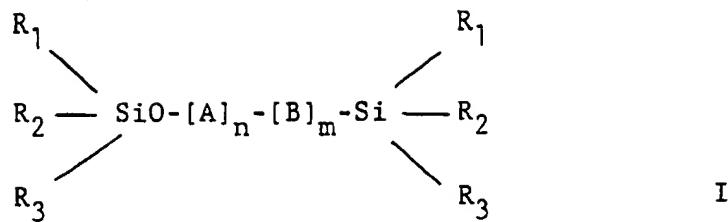
30 A water-containing blend of
cyclodimethicone and dimethicone

	copolyol (sold under the trade name Silsoft Beauty Aid SL by Union Carbide)	30.0%
	Cyclodimethicone (Volatile Silicone	
5	Y7207 - Union Carbide)	10.0%
	Cetearyl isononanoate (Cetiol SN Henkel)	4.0%
	Wheatgerm oil	1.0%
	Ethanol	15.0%
	Glycerin	10.0%
10	Sodium pyrrolidone carboxylate (Ajidew N50 - Ajinomoto)	10.0%
	Water-soluble colouring agent	qs
	Oil-soluble colouring agent	qs
	Purified water	to 100%
15	The above components were mixed and gave a composition which separated on standing to give three layers after approximately one and three quarter hours.	

Claims

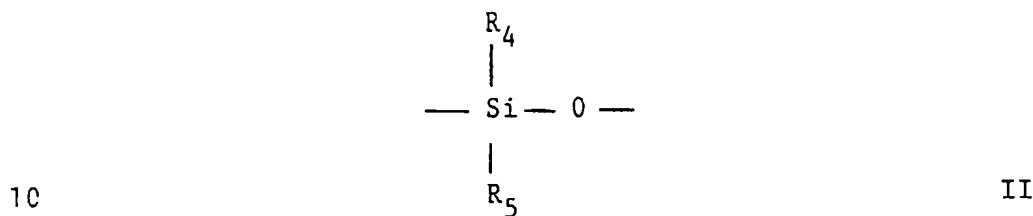
1. Cosmetic compositions which on standing form two or more distinctive layers, but which when shaken provide an emulsion which remains homogeneous for a period of at least 30 seconds comprising i) an aqueous phase; ii) an oil phase containing a volatile silicone; and iii) an emulsifying agent.
2. Cosmetic compositions as claimed in claim 1 in which the aqueous phase contains 10 to 80% by weight water.
3. Cosmetic compositions as claimed in claim 1 or claim 2 in which the aqueous phase contains up to 40% by weight of a water-miscible liquid.
4. Cosmetic compositions as claimed in claim 3 in which the water-miscible liquid is glycerin, propylene glycol, butylene glycol, sorbitol, sodium pyrrolidone carboxylate or mixtures thereof.
5. Cosmetic compositions as claimed in claim 3 in which the aqueous phase contains up to 20% by weight of glycerin.
6. Cosmetic compositions as claimed in claim 3 in which the aqueous phase contains up to 15% by weight of sodium pyrrolidone carboxylate.
7. Cosmetic composition as claimed in any preceding claim in which the aqueous phase contains up to 30% by weight of a water soluble alcohol.
8. Cosmetic composition as claimed in claim 7 in which the water soluble alcohol is ethanol or isopropanol.

9. Cosmetic compositions as claimed in any preceding claim in which the oil phase constitutes between 1 and 60% by weight of the composition.
10. Cosmetic compositions as claimed in claim 9 in 5 which the oil phase constitutes 30-50% by weight of the composition.
11. Cosmetic compositions as claimed in any one of the preceding claims in which the oil phase comprises one or more volatile silicones.
- 10 12. Cosmetic compositions as claimed in claim 11 wherein the volatile silicones are volatile dimethicone fluids or volatile cyclomethicone fluids.
13. Cosmetic compositions as claimed in claim 12 in which the volatile dimethicone fluid is hexamethyl-15 disiloxane and the volatile cyclomethicone fluid is octamethylcyclotetrasiloxane or decamethylcyclopenta-siloxane.
14. Cosmetic compositions as claimed in any one of the preceding claims in which the emulsifying agent comprises between 0.05 and 30% by weight of the cosmetic composition. 20
15. Cosmetic compositions as claimed in claim 14 in which the emulsifying agent comprises between 2 and 10% by weight of the cosmetic composition.
- 25 16. Cosmetic compositions as claimed in any one of the preceding claims in which the emulsifying agent is a dimethicone copolyol of formula I



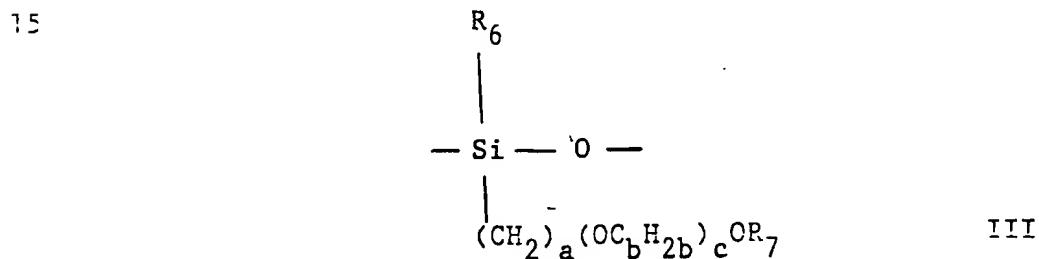
in which R_1 , R_2 and R_3 , which are the same or
5 different, are alkyl groups of 1 to 3 carbon atoms;

in which A represents a dialkylsiloxy group of formula
II



in which R_4 and R_5 which are the same or different
are alkyl groups containing 1 to 4 carbon atoms;

in which B represents a polyoxyalkylene-containing
di-substituted siloxy unit of formula III



20 in which R_6 is an alkyl group containing 1 to 4
carbon atoms, a is 0 or a number from 1 to 8, b is
2 or 3, c is a number from 3 to 20 and R_7 is a

terminal group selected from H, alkyl, aryl and acyl groups;

in which n is a number from 5 to 100; and

in which m is a number from 1 to 16.

5 17. Cosmetic compositions as claimed in claim 16 in which the groups R_1 , R_2 , R_3 , R_4 , R_5 , R_6 and R_7 are methyl groups, a is 3 or 4, b is 2, c is a number from 5 to 12, n is a number from 15 to 30 and m is a number from 1 to 5.

10 18. Cosmetic compositions as claimed in claim 17 in which R_1 , R_2 , R_3 , R_4 , R_5 , R_6 and R_7 are methyl, a is 3, b is 2, c is 7.5, n is 20 and m is 3.2.

19. Cosmetic compositions substantially as hereinbefore described with reference to the Examples.